

# **USER'S MANUAL**

## **SOUNDSTORM**

***S302***

***S402***

***S502***

***S664***

***S702***

***S804***

***S1002***

***S1004***

***S1204***

***HIGH POWER MOSFET AMPLIFIER***

# SOUNDSTORM

## USER'S MANUAL

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Congratulations on your purchase of a **SOUND STORM** car audio amplifier. S-SERIES amplifiers are designed, engineered and manufactured in the USA to the highest level of quality, and will afford you years of listening enjoyment.

All S-SERIES amplifiers utilize fully-regulated MOSFET power supplies, which assure that switching response is extremely fast and output power is clean.

Thank you for making **SOUND STORM** your choice for car audio equipment!

MODEL	S302	S402	S502	S664
RMS Watts / CH at 4 Ohms	60W x 2	85W x 2	110W x 2	85W x 4
MAX Watts / CH at 2 Ohms	150W x 2	200W x 2	250W x 2	165W x 4
Bridged Power at 4 Ohms	120W x 1	170W x 1	220W x 1	190W x 2
S/N Ratio	102dB .....			
Low Pass Crossover	35Hz - 155Hz .....			
Frequency Response	9Hz - 50kHz (+/-3 dB) .....			
THD @ RMS Watts	0.01% .....			
Channel Separation	90dB .....			
Damping Factor	100+	100+	100+	125+
Fuse	15A	15A	20A	20A
Dimensions ( 9 1/2"W x 2 1/4"H x ... )	5 1/2"	7"	9"	11"

S702	S1002	S804	S1004	S1204
150W x 2	210W x 2	150W x 4	125W x 4	175W x 4
350W x 2	500W x 2	200W x 4	250W x 4	300W x 4
325W x 1	420W x 1	420W x 2	400W x 2	480W x 2
102dB .....				
35Hz - 155Hz .....				
9Hz - 50kHz (+/-3 dB) .....				
0.01% .....				
90dB .....				
125+	125+	125+	125+	125+
30A	20A x 2	20A x 2	25A x 2	30A x 2
12"	17 3/4"	13 3/4"	17 3/4"	21 5/8"

#### Two Channel Amplifiers:

S302, S402, S502, S702 and S1002 Amplifiers

- Two Channel Bridgeable Amplifier
- Heavy Duty Aluminum Alloy Heatsink
- Class A-B Operation
- Variable Low Pass Crossover Control
- Continuously Variable Input Gain Control
- Gold Plated RCA and Low Level High Impedance Inputs
- Remote Turn On/Turn Off Circuit
- MOSFET Pulse Width Modulated Power Increase
- 2 ohm Stable Stereo Operation with Output Power Supply
- Soft Turn-On Circuit
- Thermal and Speaker Short Protection Circuitry
- LED Power and Protection Indicators

#### Four Channel Amplifiers:

S664, S804, S1004 and S1204 Amplifiers

- Four Channel Bridgeable Amplifier
- Tri-Way Mode Configuration Capable
  - S664 : 85 Watts / Channel into Four Channels  
190 Watts / Channel into Two Channels, or  
85 Watts / Channel into Two Channels plus 190 Watts into a third channel
  - S804 : 150 Watts / Channel into Four Channels  
420 Watts / Channel into Two Channels, or  
150 Watts / Channel into Two Channels plus 420 Watts into a third channel
  - S1004 : 125 Watts / Channel into Four Channels  
400 Watts / Channel into Two Channels, or  
125 Watts / Channel into Two Channels plus 400 Watts into a third channel
  - S1204 : 175 Watts / Channel into Four Channels  
480 Watts / Channel into Two Channels, or  
175 Watts / Channel into Two Channels plus 480 Watts into a third channel
- Heavy Duty Aluminum Alloy Heatsink
- Class A-B Operation
- Continuously Variable Input Gain Control
- Gold Plated RCA and Low Level High Impedance Inputs
- Remote Turn On/Turn Off Circuit
- MOSFET Pulse Width Modulated Power Supply
- 2 ohm Stable Stereo Operation with Output Power Increase
- Soft Turn-On Circuit
- Thermal and Speaker Short Protection Circuitry
- LED Power and Protection Indicators

## Built-in Crossover

All S-SERIES amplifiers feature built-in electronic crossovers.

The 2 Channel amplifiers feature an adjustable low pass crossover.

The 4 Channel amplifiers feature a pair of individually adjustable low pass crossovers.

All S-SERIES amplifiers have been designed with 100% MOSFET power supplies, ensuring extremely quick switching response and self-protection.

## Protection Circuitry

The amplifier protection circuitry will disable the amplifier if input overload, short circuit or extremely high temperature conditions are detected. When the protection mode is in operation, the LED indicator on the front panel will be illuminated, indicating the amplifier has gone into a self-preservation mode.

If you observe that the protection LED is lit, please check the system carefully to determine what has caused the protection circuit to engage. The amplifier can be reset by turning the remote power off and then on again. If the amplifier shut down because of an input overload or short circuit, be sure to repair these conditions before attempting to power up the amplifier again.

## 2 Ohm Operation

Your S-SERIES amplifier was designed to operate efficiently at loads down to 2 Ohms. This means that you can install four 8 Ohm speakers per channel when using parallel wiring. Increasing the number of woofers per channel at low frequencies (up to 100MHz) produces an acoustic coupling effect. This acoustic coupling increases your power output by 3 dB per speaker, or the equivalent of an additional 10W to each speaker.

When operating at 2 Ohms, the amplifiers will increase their output power by approximately 50%. The current draw will so increase by about the same amount, also be sure you have enough current to run the amplifiers into a 2 Ohm load. If you lack adequate current, your music reproduction will be distorted.

Please note: The gain control of any car audio amplifier should not be mistaken for a volume control. It is a sophisticated device, designed to match the output level of your audio source unit to the input level of the amplifier. Do not adjust this input level to maximum unless your input level requires it. Ignoring these instructions will result in an input overload to the amplifier, and excessive audio distortion. It can also cause the protection circuit to engage.

## Electrical Wiring

All SOUND STORM S-SERIES amplifiers are equipped with easy top access screw terminals. These terminals are 14K Gold Plated in order to ensure excellent electrical contact, and to resist corrosion.

When making electrical connections to the amplifier, please observe the following:

Use at least 8 gauge or heavier wires for power and ground connections.

Wire the amplifier directly to the car battery.

For the ground connection, use the shortest possible wire to a good chassis ground point.

Wire the Remote connection to the auto start lead of your equalizer or power antenna.

## Fuses

Power fuses protect both the amplifier and the electrical system of your vehicle from fault conditions. If you must replace the fuse in your SILVER amplifier, use a fuse of exactly the same type and rating. A different type or rating of fuse may result in damage or fire.

## Mounting the Amplifier

Mark the location for the mounting screw holes by positioning the amplifier where you wish to install it and use a scribe (or one of the mounting screws) inserted in each mounting hole to mark the mounting surface. If the mounting surface is carpeted, measure the hole centers and mark with a felt tip pen.

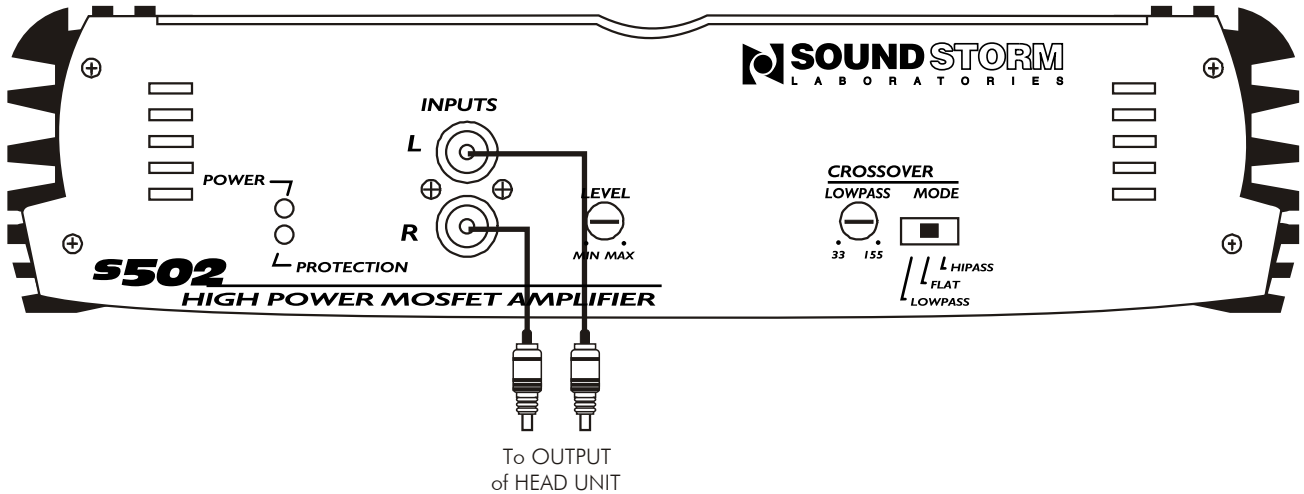
Drill pilot holes in the mounting surface for the mounting screws and insert the mounting screws into these holes. Tighten them securely.

Note : Be sure to take note of any wires, lines or other devices in your vehicle which may be located behind any mounting surface!

## Low Input Wiring

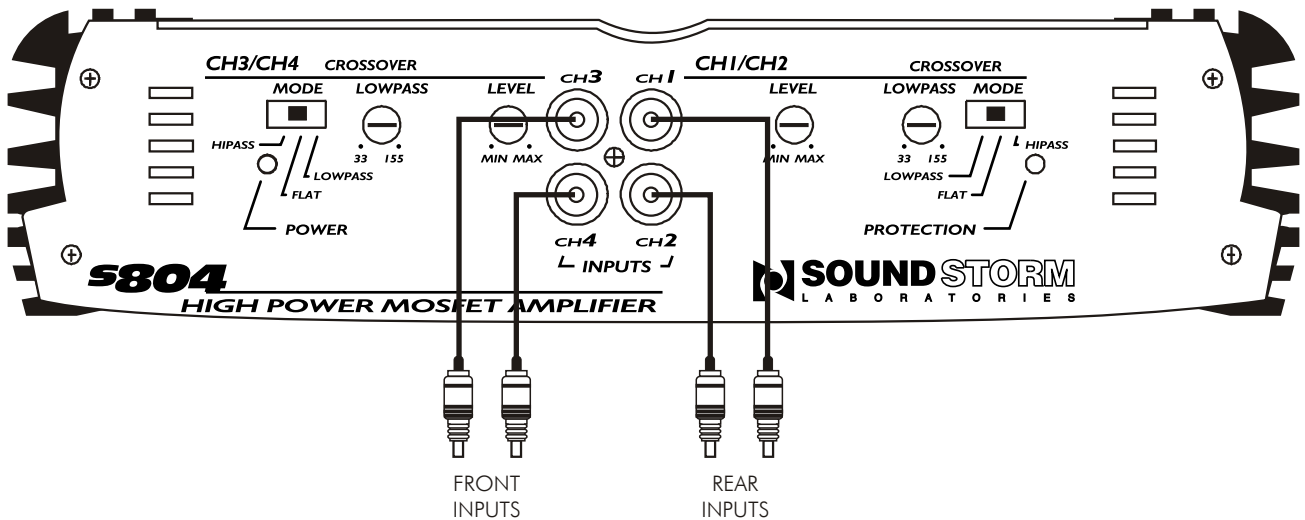
Two Channel Amplifiers:

S302, S402, S502, S702 and S1004 Amplifiers



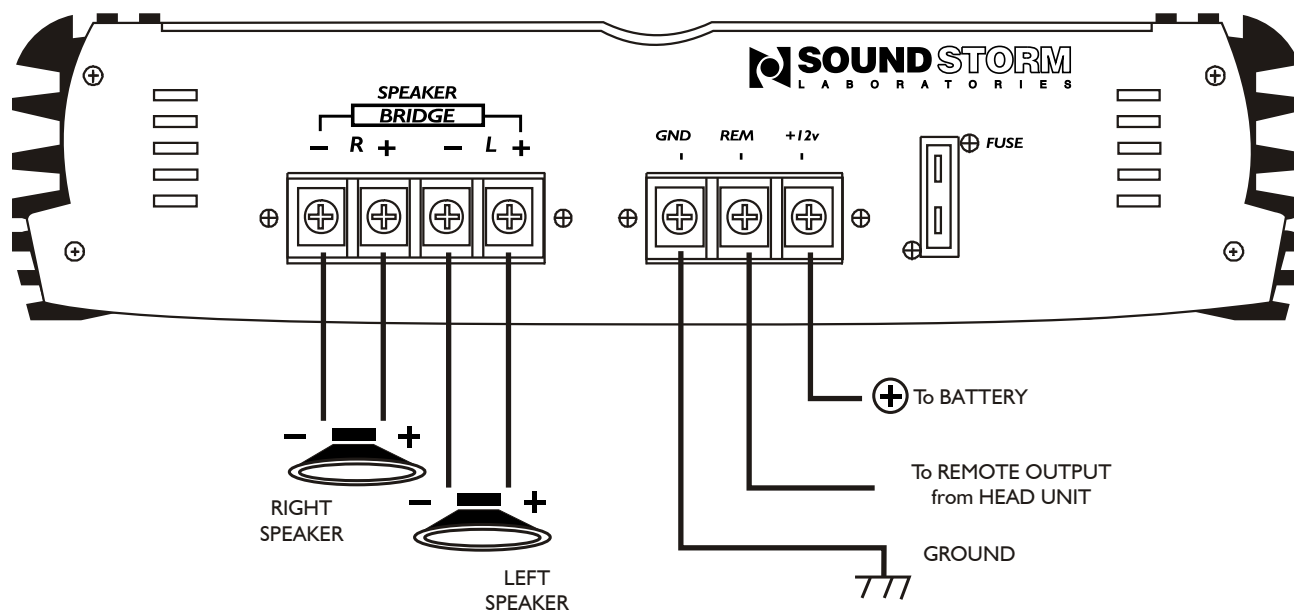
Four Channel Amplifiers:

S664, S804, S1004, and S1204 Amplifiers



## TWO Channel speaker Wiring

Two Channel Amplifiers:  
S302, S402, S502, S702 and S1004 Amplifiers

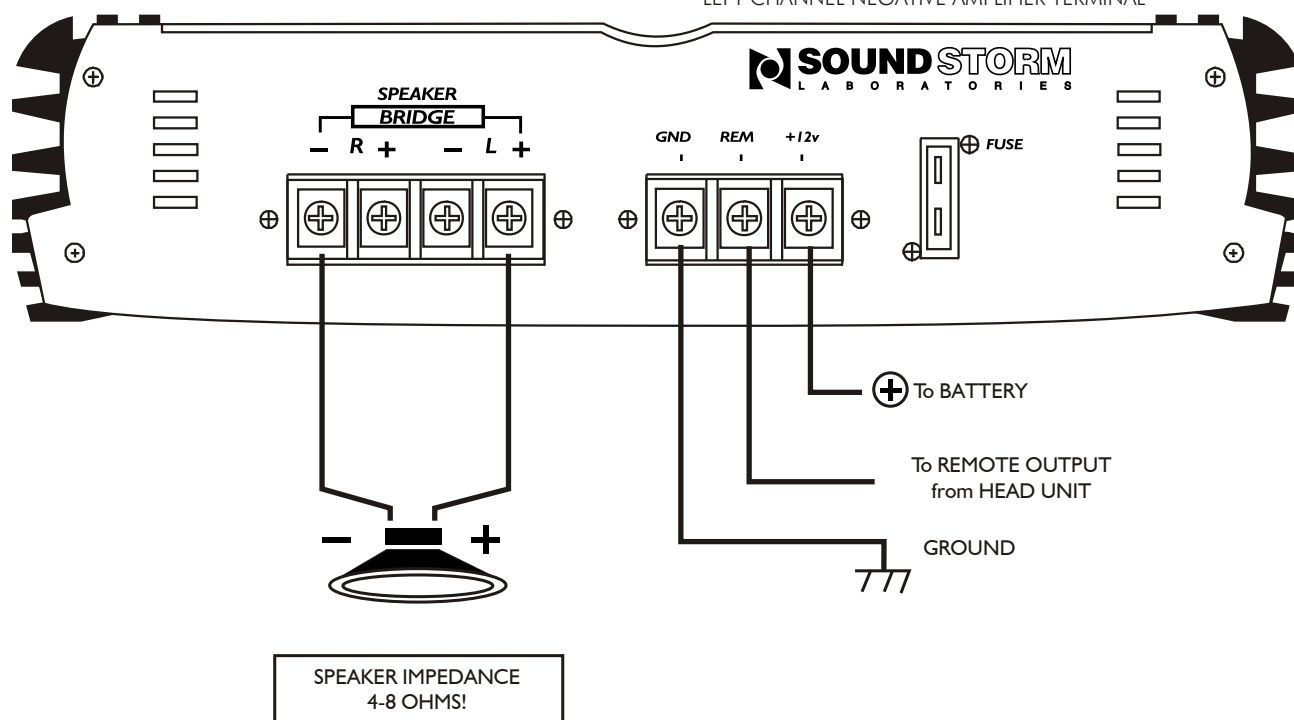


## Bridged Speaker Wiring

Two Channel Amplifiers:  
S302, S402, S502, S702 and S1004 Amplifiers

Connect the NEGATIVE SPEAKER TERMINAL to the  
RIGHT CHANNEL NEGATIVE AMPLIFIER TERMINAL

Connect the POSITIVE SPEAKER TERMINAL to the  
LEFT CHANNEL NEGATIVE AMPLIFIER TERMINAL



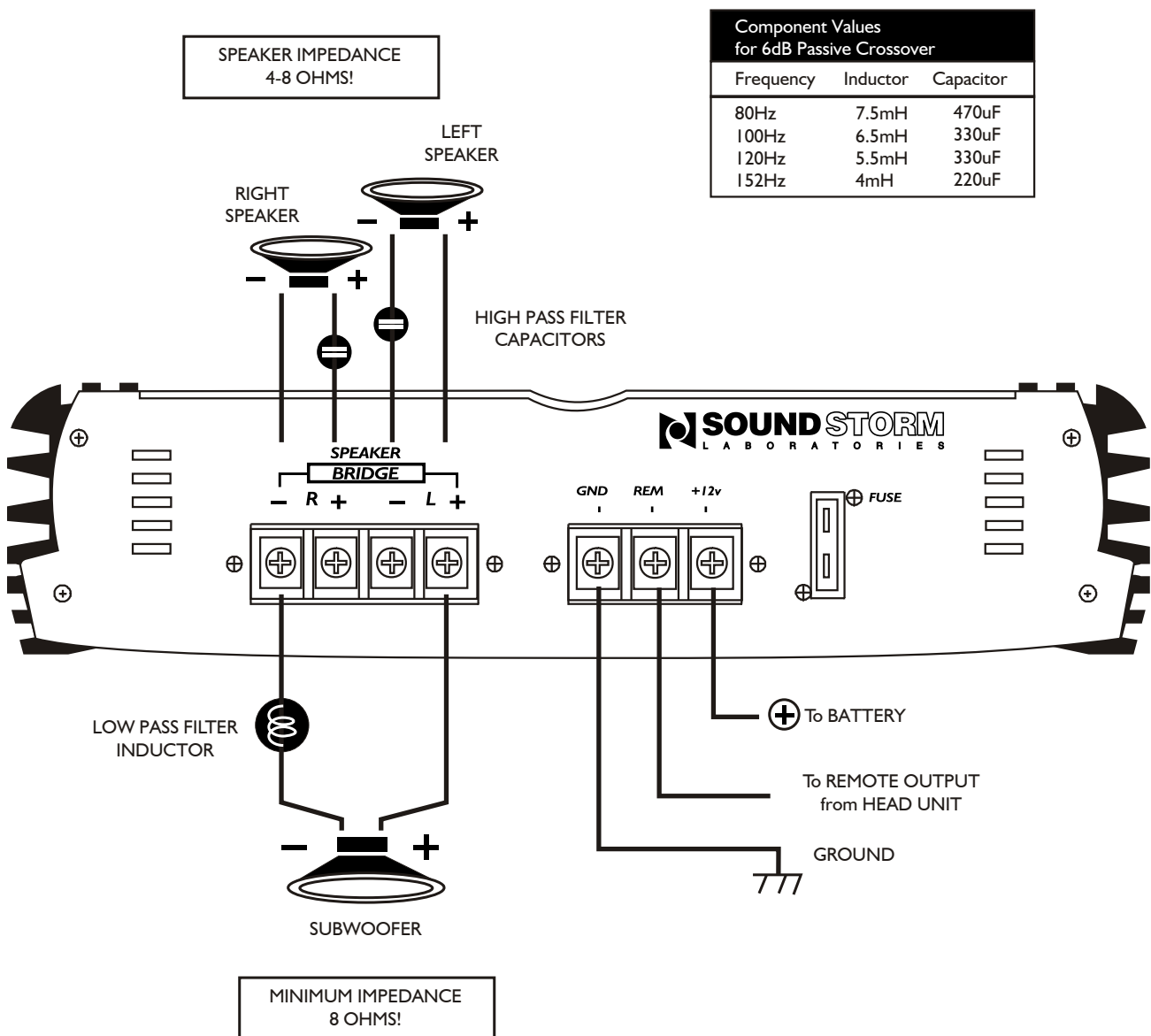


## Tri-Way Speaker Wiring

Tri-Mode Operational Output is a unique feature which allows a Crossover (Subwoofer) to Be operated in MONO mode, while the main speakers are playing in STEREO.

To engage the amplifier in this mode, place the Crossover (Subwoofer) switch in the "OUT" position. Use a 100v non-polar capacitor for a high pass crossover and a wire coil inductor to block high frequencies from the Crossover (Subwoofer) as shown in the figure below. Please review the table below for inductor and capacitor component values to determine the desired crossover frequencies.

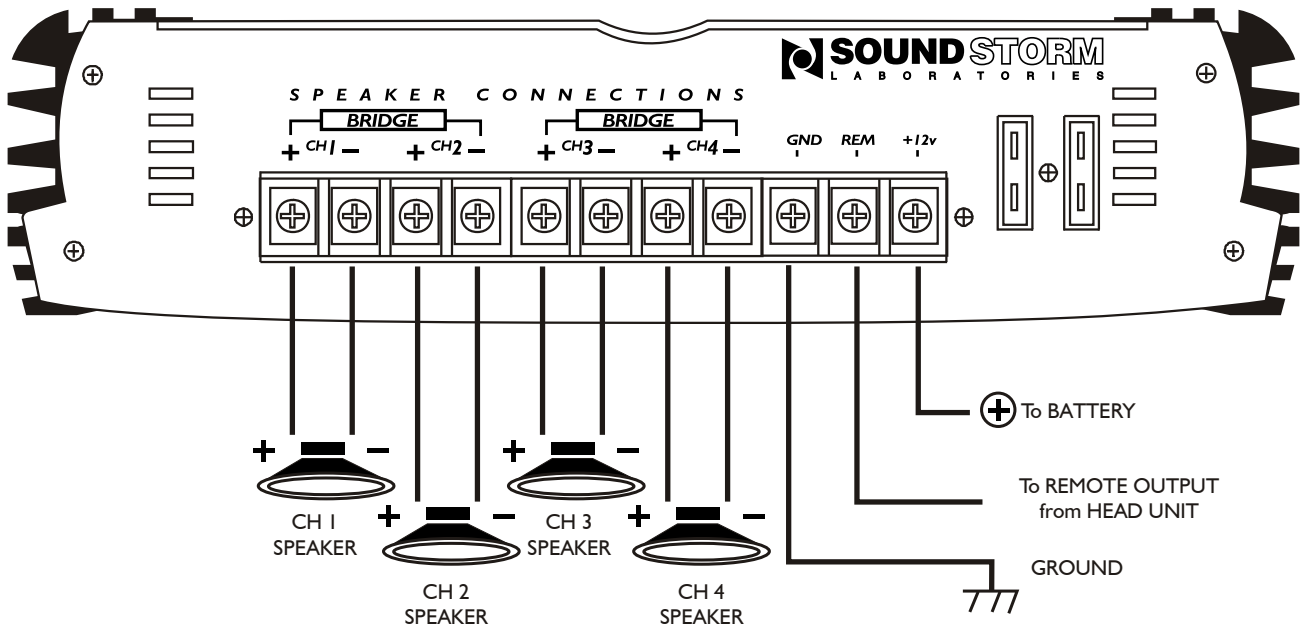
Two Channel Amplifiers:  
S302, S402, S502, S702 and S1004 Amplifiers



## Four Channel speaker Wiring

Four Channel Amplifiers:

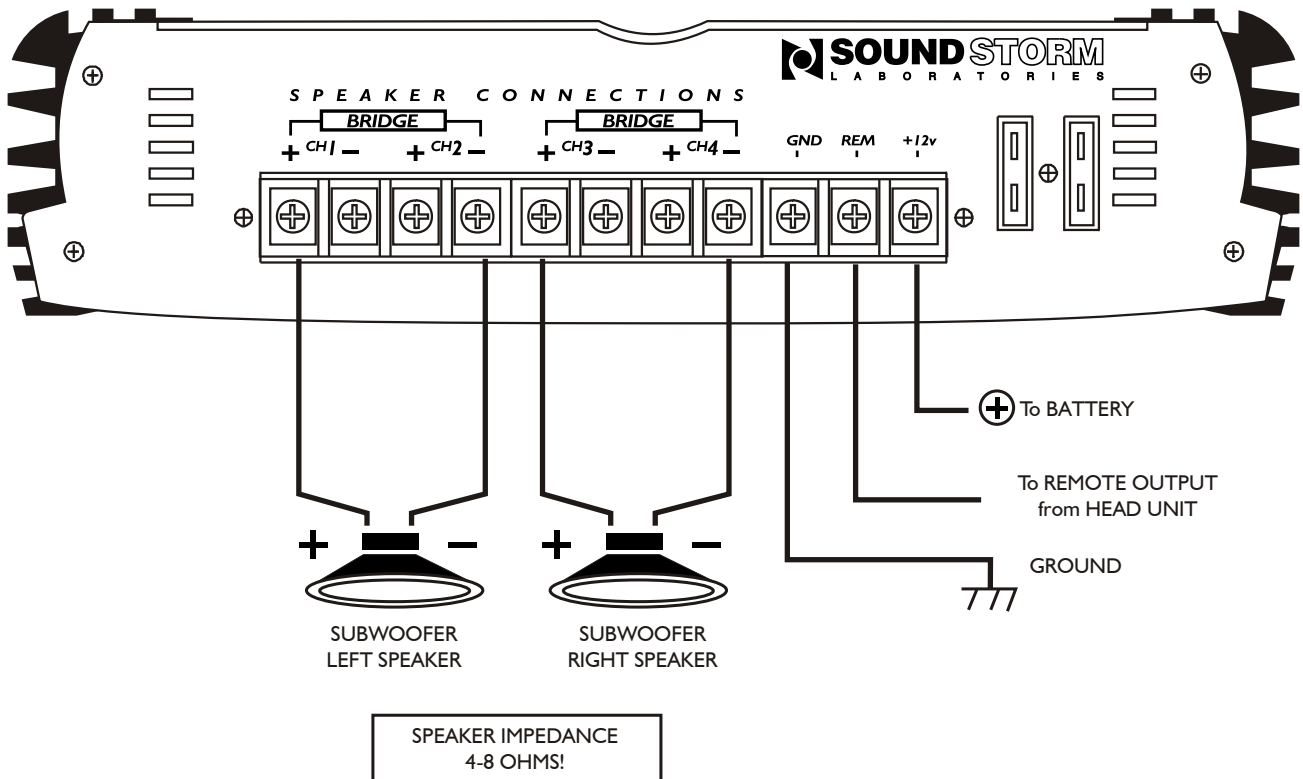
S664, S804, S1004 and S1204 Amplifiers



## Bridged Speaker Wiring

Four Channel Amplifiers:

S664, S804, S1004 and S1204 Amplifiers



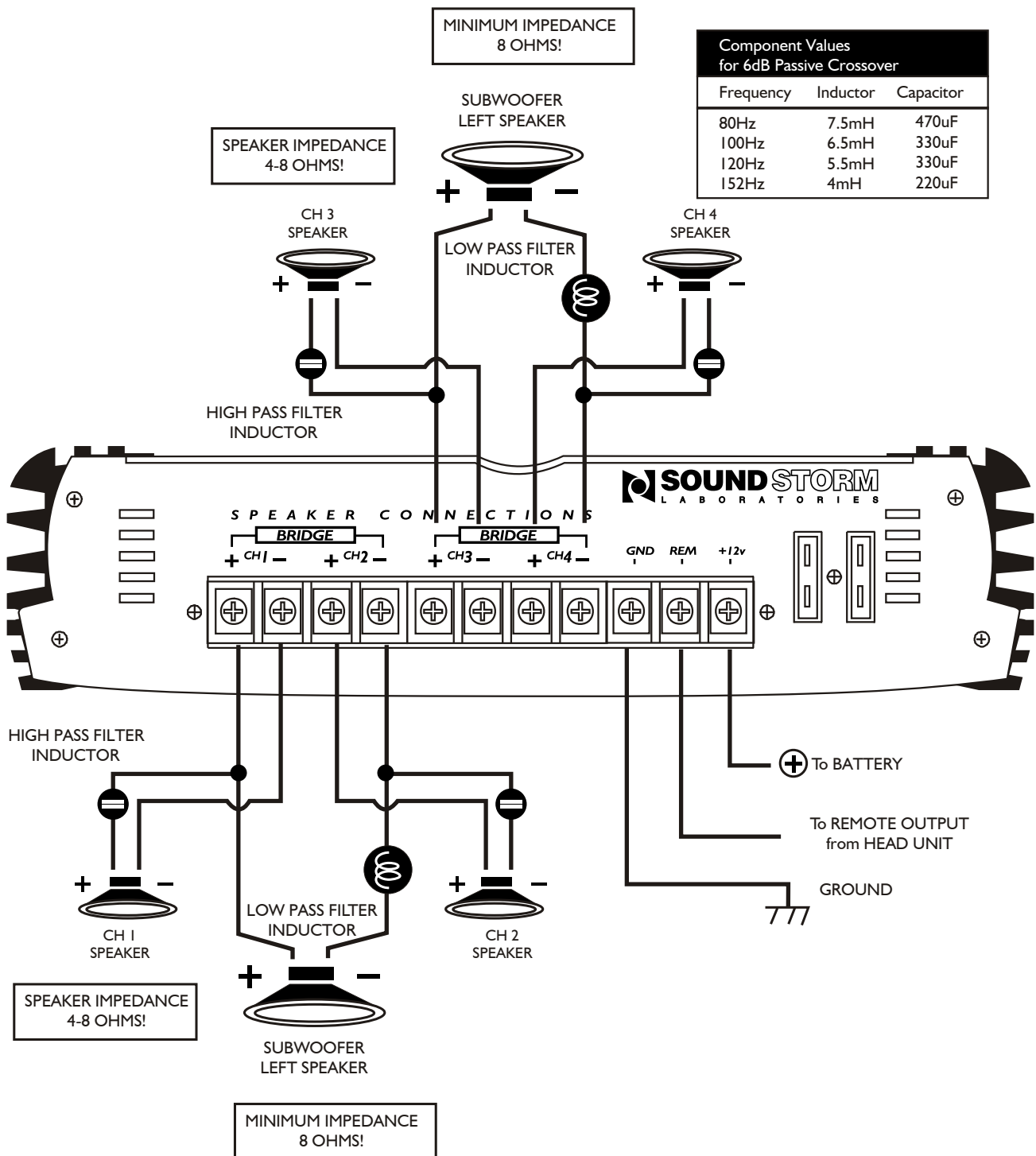
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Four Channel Amplifiers:

S664, S804, S1004 and S1204 Amplifiers

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## Precautions

Before you drill or cut any holes, investigate your car's layout very carefully. Take care when you work near the gas tank, fuel lines, hydraulic line and electrical wiring.

Do not operate the amplifier when it is unmounted. Attach all audio system components securely within the automobile to prevent damage, especially in an accident.

Do not mount this amplifiers so that the wire connections are unprotected or in a pinche a condition, or likely to be damaged by nearby objects.

Before making or breaking power connections in your system, disconnect the vehicle battery. Confirm that your head unit or other equipment is turned off while connecting the input jacks and speaker terminals

If you need to replace the power fuse, only replace it with a fuse identical to that supplied with the system. Using a fuse of a different type or rating may result in damage to your system which isn't covered by the manufacturer's warranty.

## Troubleshooting

Before removing your amplifier, refer to the list below and follow the suggested procedures, Always test the speakers and their wires first.

**No Output**      Confirm that all terminal strip connections are secure and tonight.  
Check both in-line and built-in fuses. Both the "+ 12v" and the "REMOTE" terminals must have + 12v referenced to chassis ground.

Confirm that the audio signal source (car audio, equalizer, etc.) is connected and is supplying output signal. To check if the amplifier is supplying signal, unplug the RCA cables from the signal source (but leave them plugged into the amp). Briefly tap the center pin of each of the disconnected RCA plugs with your finger. this should produce a noise (feedback) in your speakers.

**Only one channel works**      Confirm that all speaker strip connections are secure and tonight.  
  
Check the "BALANCE" control on the head unit (or other source) to verify that it is set to its midpoint.  
  
If you are using the Low Level RCA input, reverse the input plugs at the amplifier (switch the R with the L). If the channel which is silent switches to the other side, the problem is either in the head unit/other source or the connecting cables.

**Weak output**      Readjust the input Sensitivity control to better suit the input signal.

**Noise in the Audio**      If the noise is a "whine" whose pitch follows the engine speed, confirm that the amplifier and any other signal sources (head unit ,etc.) are properly grounded.

If the noise is a "clicking" or "popping" noise whose rate follows the engine speed, this usually means that the vehicle is equipped with resistor spark plugs and wires, or that the ignitions is in need of service.

Check the routing of the speakers and input wires to make sure they are not adjacent to wires which interconnect lights and other accessories.

If the above steps fail to improve or clear noise interference, the system should be checked by a professional mobile audio installer.